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ABSTRACT

This guide was developed to provide school district, area vocational-technical school, and postsecondary administrators in Pennsylvania with guidance for managing an accountability system for their vocational education programs. Although drafted primarily to assist agencies in meeting the intent of the Carl D. Perkins legislation, the model presented here is designed to be generically useful for program assessment. The guide begins with a description of the needs assessment required for Perkins Act programs, and it provides information on using the needs assessment. It also provides guidance on using the special population needs assessment. Models are included for each type of assessment. Information on assessing specific uses of Perkins funds also is provided. An appendix lists measures and standards for various outcomes, such as participation, completion, retention, workplace basic skills, occupational achievement, human relations skill, problem solving, abstract reasoning, creativity, decision making employability, job success, and salary and wage levels. (KC)

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A Guide to Accountability for the
Carl D. Perkins Vocational and Applied Technology
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December, 1991

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PREFACE

The Carl D. Perkins Vocational and Applied Technology Act of 1990 has changed significantly the nature of accountability for federal vocational education funds. Whereas previous federal laws focused on fiscal accountability – that is, the legality of the expenditures – THIS LAW IS CLEAR IN ITS INTENT THAT STUDENT PERFORMANCE IMPROVE AS THE RESULT OF FEDERAL DOLLARS.

It is equally clear that recipients of Perkins funds must engage in rigorous evaluation procedures in order that:

(1) programs needing improvement can be identified,

(2) the expenditures of federal funds do in fact bring about measurable improvement, and

(3) the needs of all populations are met through quality vocational education programs.

The assessments required for the preparation of the Local Plan were not the end. Rather they were simply the beginning of systematic measurement of the effectiveness of the educational experience for students. It is not how many times, for how long or how often students are touched by school, but what students can do or do better as the result of that contact. The performance evaluation required by Perkins is in concert with outcome assessments increasingly being required by states throughout the nation. It is also consistent with expectations of parents, citizens and employers who have vested interests in how well schools perform. Educators must hold themselves and each other accountable for how well students are prepared for their place in society.

PURPOSE

The purpose of this publication is to provide school district, area vocational-technical school and post-secondary administrators with guidance for managing an accountability system for their vocational education programs. Although drafted primarily to assist agencies to meet the intent of the Perkins legislation, the paradigm presented is designed to be generically useful for program assessment. Issues of measuring and documenting student performance and identifying improvements resulting from intervention strategies are essential, but not unique, to the use of federal funds.

INTRODUCTION

In order to qualify for allocations of Perkins funds, eligible recipients were required to prepare and receive state approval of a Local Plan. Key to the approval of each plan was the completion of disciplined needs assessments to determine how well each program was performing and how well each special population has been served by vocational education. A labor market assessment was also required to provide additional information about training and training needs.

Program assessment is not an event. It is an ongoing process. The above assessments provided a snapshot, at one point in time, of the performance of vocational education students in programs at institutions contributing to the Local Plan. Although the measures may have been difficult and the techniques primitive at times, data were gathered that provided a base for program assessment.

The goal of managing the Local Plan is to demonstrate measurable improvement in student performance, in programs and services found deficient, especially in areas impacted upon by federal funds. Techniques employed in the evaluation allow local program managers to separate programs and improvement strategies that are working from those that are not, before the deficiencies become so obvious as to impact upon the credibility of the system.

The needs assessments required for the Local Plan will be the starting point of this monograph and each assessment will be used as stepping stones to an accountability model for local program and Local Plan management.

USING THE OCCUPATIONAL NEEDS ASSESSMENT

An occupational needs assessment was required in each Local Plan. The purposes of this assessment were to:

(1) Identify where the local jobs are now and where they are projected to be in the foreseeable future.

(2) Identify what employers are saying about the performance of recent vocational graduates in the workplace.

In conducting the occupational needs assessment, each institution was asked to limit that assessment to occupations relevant to their mission. Occupations considered not important to their mission should not be addressed in the assessment. Unskilled occupations, as well as occupations requiring advanced degrees or professional training, since they are ordinarily not included in the occupational mission, are of little direct interest to any applicant. Similarly, the specialization of some institutions, particularly at the postsecondary level, also limits the types of occupations to include in the assessment. However, by not limiting the assessment to occupations for which students were currently trained allowed the opportunity for discovery of the need for new occupational training programs.

Evidence from this assessment provides essential information regarding the most critical external cause of program failure. This evidence is part of the overall program improvement strategy. Clearly, poor program performance where there is job opportunity has different meaning for program improvement than poor program performance where there are no jobs.

The complexion of the local workforce, however, is not static: Although change in job opportunity is predictable, the frequency and sequence of change is not. Very likely, many local areas experience long periods with little change interrupted by dramatic change as major employers expand, retrench or reorganize their workforce. But this kind of change seldom follows an orderly timeframe. Other local areas may experience only gradual change. Schools well connected to the business community will find clues as to how often new occupational assessments are warranted to redocument job opportunities and skill needs.

The second purpose of the occupational needs assessment was to determine from employers their perception of the abilities of vocational graduates. Although there are mixed reviews nationally on the quality of occupational skills, the quality of occupational skills can be easily assessed locally on a program by program basis and do not appear to be the major issue. What does appear to be a national issue is discontent of employers with workplace basic skills of new employees.

Deficiencies that have been well documented from industry surveys include:

(1) learning to learn;

(2) reading, writing, and computation;

(3) communications: listening and speaking;

(4) creative thinking/problem solving;

(5) personal and career development;

(6) interpersonal teamwork;

(7) organizational effectiveness/leadership; and

(8) others.

This evidence does not mean, however, that every program at every school has these deficiencies. These are outcomes to be tested with local employers and, if deficient, incorporated into the improvement strategy. Clearly, these are extremely important aspects to the success of occupational training. Admittedly many of these identified deficiencies are extremely difficult to measure in an institutional setting and much more needs to be learned about instructional strategies to develop these skills.

USING THE PROGRAM & SERVICE NEEDS ASSESSMENT

Each Local Plan also included a program and services needs assessment. The purposes of the program and service needs assessment were to:

(1) Assess the success of each program and service via student participation and performance (e.g., access, placement, retention, achievement).

(2) Evaluate the conditions within each program and service that contribute to the ability of each to achieve desired student participation and performance (e.g., curriculum, resources, equipment, instruction).

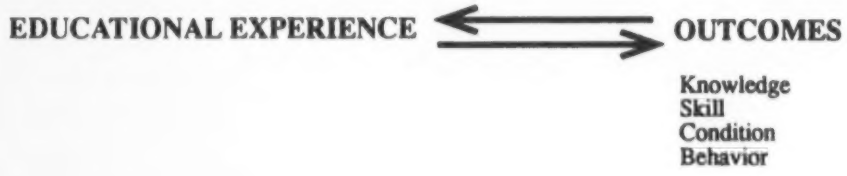
Continuous systematic tracking of program performance is essential to effective program management. It can identify those programs in need of improvement, as well as verify the impact of implemented improvement strategies. Therefore, monitoring is a prerequisite to any program improvement strategy. As implied earlier, if there is no occupational demand for workers, no matter how well trained, resources to improve the program may not have positive results. However, if poor program performance cannot be traced to external causes, improvement of the infrastructure may be warranted.

AN ASSESSMENT MODEL

The purpose of assessment is to determine if programs and services are achieving the intended results both individually and collectively. Accountability begins by defining the outcomes a program is expected to achieve. In this case, outcomes are specifically stated performances expected of students because of their participation in school or because of specific programs or services in the school. The assessment model may involve process, but it begins with outcomes. Without clear outcomes it is impossible to determine if a program is effective.

The key to monitoring performance of programs and services is first to select the student-centered outcomes that accurately and adequately reflect the expectations of each program and service.

An outcome refers to a desirable student knowledge, skill, condition or behavior that can be attributed at least in part to the educational experience and can be demonstrated at the end of that experience. Just as outcomes are used to plan the educational experience, they are used to assess the quality of that experience. It is essential that the outcomes used to design the program are identical to those used to assess its effectiveness.



An outcome typically related to participation in vocational education is "employability" - a condition requiring certain knowledge, skills and behavior. Most programs and services have multiple outcomes. Some are more important than others. Examples of outcomes may be listed that reflect many of the purposes of vocational education programs and services.

OUTCOMES

(1) participation,
(2) completion,
(3) job retention,
(4) credentialling,
(5) workplace basic skills,
(6) academic skills,
(7) occupational skills,
(8) social skills,
(9) problem solving skills,
(10) abstract reasoning ability,
(11) creativity,
(12) employability, and
(13) salary/wage.

Although "participation" and "completion" are not actually outcomes, they are included in the list because of their relationship to program mission. This is not intended to be a complete list. Any agreed upon set of outcomes can provide a basis for what programs or services are held accountable.

Once an outcome is specified it must be defined and the presence or absence of that outcome measured. The measure can verify the achievement of an outcome and also define it by describing the conditions under which the measurements were taken. Measurements may be direct, such as surveying students to determine employment status, or indirect, such as comparing social security numbers to earned

income tax files, unemployment claims or welfare benefits. It may also be necessary to consider beginning conditions of enrollees when defining the measure. For example, if adult enrollees are already employed a placement outcome may be irrelevant. A more appropriate outcome might relate to an increase in earning power.

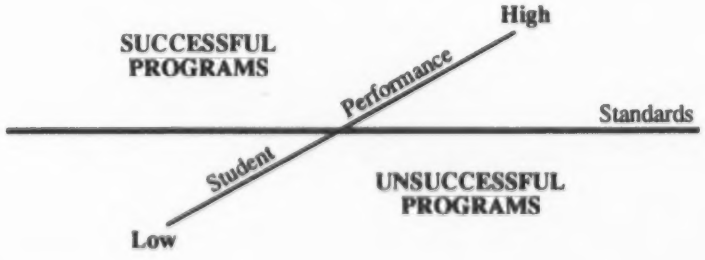
Outcomes and measurement are interdependent. An outcome directs the measurement but most outcomes may be defined and measured in many different ways.

OUTCOMES	→	MEASURE
Employability		• Training related placement within specified time period • Gainful employment at a specified time following completion • Unemployed and looking for employment

Each measure may further require definitions, such as, "What is training related placement?", "What specified time period?", etc. There can be no lack of clarity in specifying the measure.

The measure and, therefore, the outcome drive the data collection efforts. How can reliable and valid data be collected efficiently to measure the outcome as it has been defined? Can the data be aggregated and reported in meaningful ways? The ability to collect and use the data often influences the measures selected. Examples of measures of additional outcomes are appended for reference.

Once the outcomes have been measured the results need to be interpreted. Standards are adopted to determine if measured achievements fall within acceptable limits. A standard is the desirable minimum level of student performance willing to be accepted and still term the program "successful." Any measurement falling below the standard is indicative of the need to improve or perhaps terminate the program or service. The Perkins legislation provides that programs be measured by both state and local standards. Failure to meet the standards requires the development of an improvement plan. Although, goals may strive for perfection, standards are usually something less than 100 percent achievement to allow tolerance for variables not under the control of the program.

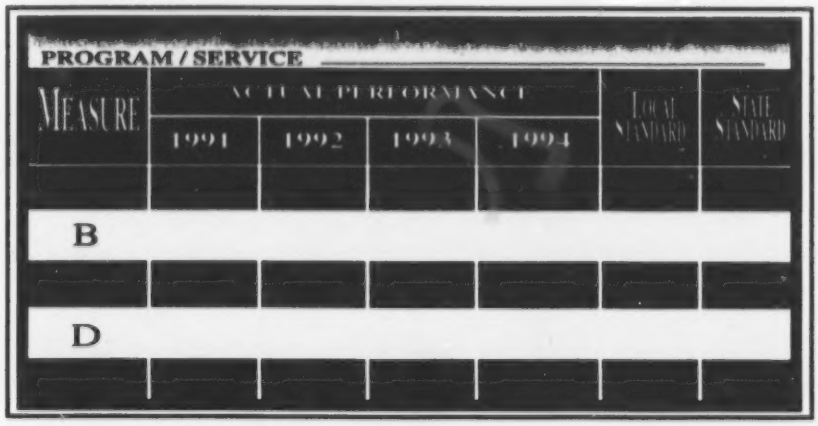


Standards are limited by and tied to the measures. Extension of the assessment model demonstrates the linear relationship from outcomes to standards. The actual standard can be any specific (usually numerical) value that represents an acceptable level of achievement under the conditions in which the program operated. These illustrations are not finite nor exhaustive of the options for selecting either measures or standards.

OUTCOMES →	MEASURES →	STANDARDS
Employability	• Training related placement within specified time	• Placement of a specific percent or number
	• Gainful employment at a specified time following completion	• Specific percentage increase in the percent or number placed
	• Unemployed -- looking for employment	• Specific ratio of percent unemployed to the local youth unemployment rate

Once outcomes, measures and standards have been agreed upon, performance of individual programs can be periodically assessed and achievement compared to desired standards. A school lends itself well to annual assessment because of the current semester/yearly structure. Figure 1 illustrates how performance measures may be applied to each program and differences, if any, noted between actual and desired performance. The magnitude of deficiencies in performance or lack of progress toward achieving standards highlights needs for intervention in each specific program.

Figure 1



This figure shows the data needed to assess each vocational program. Individual programs are identified at the top of the chart. The measures (A, B, C, etc.) are those selected to assess achievement of specific outcomes of this program or service. The actual level of performance each year is recorded for comparison with established local and state standards. It may be common for programs to meet some standards and be deficient in others, challenging program managers to determine if intervention strategies are warranted.

The second purpose of the program/service needs assessment was to allow managers of local educational programs to evaluate internal components of each program for evidence that may contribute to or detract from student performance. This is a transition from outcomes to process, since it is presumed that there is a cause-effect relationship between processes and outcomes. The typical vocational instructional program may be evaluated on components, such as, curriculum, instruction, facilities and equipment, among others. Evaluation of each of these requires different methodologies, each beyond the scope of this discussion. It is the outcomes, however, that authenticate the design and redesign of the instructional process.

Compared to programs, the assessment of services is considerably more complex. Services vary in purpose and structure. Therefore, each differs in outcomes, measures and standards. This assessment model may, however, be applied to service, as well as program outcomes. Each service (i.e., for special populations) was also assessed in the Local Plan by measures of student outcomes each service was specifically designed to achieve. Services not meeting expectations (with regard to achieving student outcomes) are analyzed to identify cause and potential strategy for modifying that service. Some of the more common service outcomes found in Local Plans are:

(1) Improved academic achievement,
(2) Improved occupational achievement,
(3) Improved career knowledge,
(4) Improved career decision making,
(5) Improved retention, and
(6) Improved placement.

As one can see, service outcomes frequently relate to enhancement of what are commonly viewed as program outcomes. Often services are designed for specific populations to facilitate their ability to achieve exit success in a regular environment. Services outcomes may also aim directly at the program measures rather than the outcomes themselves in order to demonstrate improvement in measured success. A placement service, for example, is generally regarded as acceptable intervention that really does not impact upon the employability of the completers. In contrast, coaching on an exam would generally cross the line of acceptability. Both examples are aimed at improving measured success. Appropriate use of service outcomes is determined by program managers.

USING THE SPECIAL POPULATION NEEDS ASSESSMENT

The Perkins legislation requires needs assessments in the Local Plan for each special population. The special populations needs assessment posed two challenges for local administrators:

(1) Identifying the special populations.

(2) Identifying the success each special population group is experiencing from vocational education.

Previous federal legislation and state procedures directed energies primarily toward identifying each special population. Definitional criteria and lists of approvable expenditures dominated the guidelines. Strategies and processes believed to meet their needs dominated the literature. Performance was achieved by spending the money on significant numbers of the "right" students.

The primary feature of current legislation is to determine whether or not each special population is experiencing success from participation in vocational education. The transition from criteria for identifying special populations to criteria to measure their success was not an easy one for program administrators to make. It is no longer acceptable to assume that if one identifies the special populations correctly, their needs are automatically known, and if exposed to well publicized solutions the result will be inherently successful. The success of each special population must be demonstrated at each site in terms of student performance.

AN ASSESSMENT MODEL

Since accountability is for measured student performance, it is appropriate to use essentially the same measures for any special or total population as are used in the program assessment. More emphasis may be required, however, among special populations to measure program access and job retention, since these are specific special population issues. For additional precision, one may introduce additional criteria or subdivide large numbers of any one special needs category (e.g., hearing impaired) in order to better tailor and measure the impact of specific interventions. Figure 2 illustrates the structure for this assessment. The

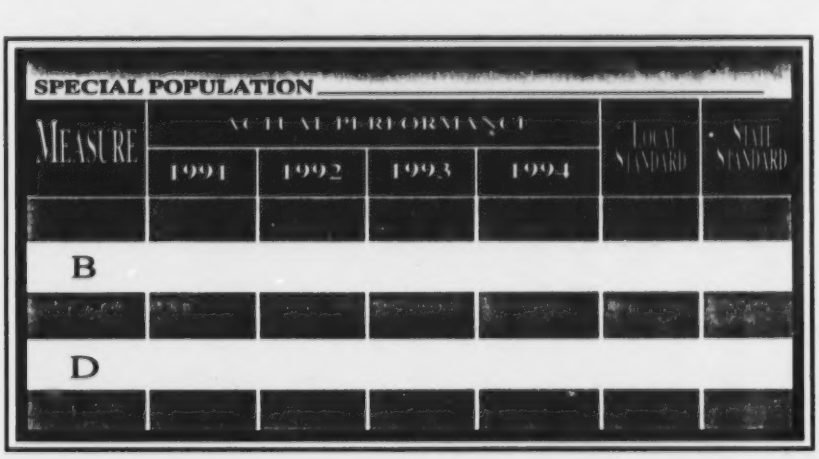


Figure 2

figure shows the data needed to assess the success of each special population (which is identified at the top of the figure). The measures are those selected to assess each outcome for each special population. The level of achievement each year on each measure is recorded for comparison with pre-established standards. The differences between actual performance and standards are the cues to any improvement strategy.

It may be noted that the model for special populations is identical to that for programs and that most data needs may have already been defined. Therefore, data collected on student performance can be utilized to assess both the success of programs and the success of populations.

Thus, the performance of all programs and populations can be accomplished from a single data plan. Data managed though a matrix configuration is illustrated in Figure 3. Each program is assessed by the performance of all populations in that program. Similarly, the success of each population is assessed across all programs. Assessment of performance of specific populations within programs are facilitated where sufficient numbers of students allow the manager to generalize. Otherwise, the operative data analysis is from the total columns on each axis.

Figure 3

This structure of the performance assessment will insure that both programs and populations are served by the monitoring and accountability system. Depth of the model is achieved by the addition of measures and standards which apply to both programs and populations. The number and complexity of the measures and standards beyond those established by the state are at the option of the program managers.

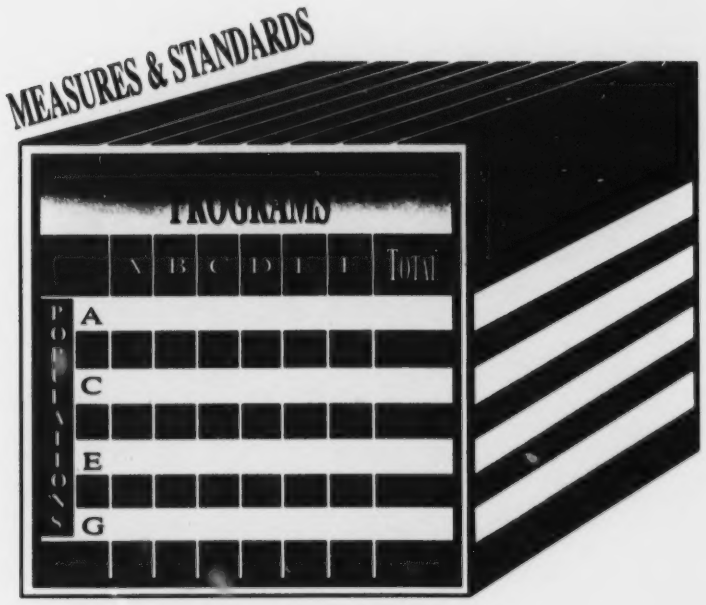


Figure 4

Assessment like that in any other business requires a records system that can collect, access and analyze selected outcome measures. A history of actual student performance provides an empirical basis for testing the validity and appropriateness of the uses of Perkins funds to improve programs. Only by documenting the actual and significant student performance can one assume that special populations have access to quality programs and also determine that the needs of special populations are being met through vocational education.

ASSESSING SPECIFIC USES OF PERKINS FUNDS

Each approved Local Plan is an agreement between a local agency and the state regarding the appropriate use of Perkins funds. It is also the means by which the state has assured the federal agency that all state requirements of Perkins are being met and that the uses of Perkins funds are documented. In the Local Plan, each applicant specified the improvements projected to occur as the result of Perkins funding. These improvements were based on assessed and prioritized program deficiencies.

Therefore, in addition to applying local and state performance standards to all vocational programs and populations, each recipient of allocated Perkins funds must assess progress toward meeting each objective specified in the approved Local Plan. The Act requires that failure to achieve satisfactory progress toward

those objectives by the end of the second year will require the development of an improvement plan. The improvement plan will consist of modifications to the planned activities and expenditures in the Local Plan to better achieve the proposed objectives. It may also be a major consideration for the final two-year plan (1995-1996) applicable to the Perkins Act.

Figure 5 illustrates the procedures for monitoring the transition from the uses of funds in the Local Plan to the accountability model. The entries and interpretations are identical to that presented throughout this monograph.

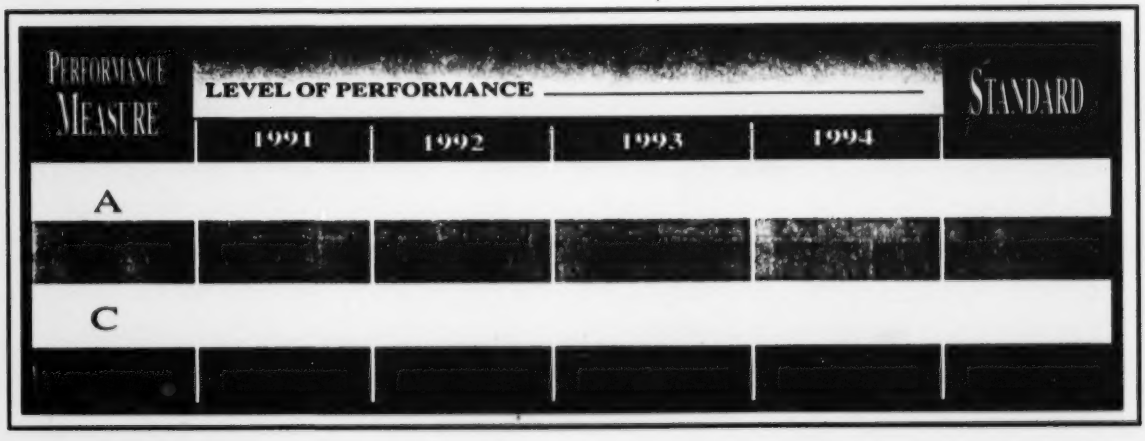
Figure 5

Local Plan Objective _____

_____

Specified Local Measures & Standards _____

_____



SUMMARY

The preceding discussion has focused on one paradigm for assessing the effectiveness of vocational education that can be utilized for managing Local Plans. The assessments completed in order to prepare Local Plans were the beginning of a data based management system.

The foundation of the paradigm is outcomes; these, in terms of student exiting performance, are the framework of program assessment. Measures are selected to determine the extent to which each outcome has been achieved. Measures also help define the outcome, describe the conditions under which the measurement is achieved, and establish the parameters for the data collection system. Standards are established to differentiate programs that are successful from those that are not.

Figures and illustrations were offered to help the reader visualize the principles of the paradigm presented. Examples of outcomes, measures and standards are provided to assist with the explanation. Specific numerical examples, however, have been avoided in order to focus attention on the concepts.

Hopefully, this discussion will contribute to the ability of program managers to improve vocational education programs by better assessing the quality of programs and planning better plan intervention strategies where they are needed most.

APPENDIX A

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Examples of measures and standards for various outcomes:

OUTCOMES	MEASURES	STANDARDS
PARTICIPATION	• Head count	• % increase (decrease) in number enrolled
	• Percent of population(s) represented	• Ratio of representation to general population
COMPLETION	• Those completing all requirements of the program	• % change
	• Those completing individual objectives	• %
RETENTION	• Dropouts during any specified timeframe	• % change
	• Those receiving a passing grade for specific enrollment period(s)	• %
WORK PLACE BASIC SKILLS	• Academic skills	• Grade levels standardized scores
		• Exam scores
	• Career knowledge	• Employer ratings
	• Portfolio assessment	• Peer ratings
	• Demonstration	• Examiner ratings
	• Work Sample assessment	
OCCUPATIONAL ACHIEVEMENT	• Performance tests	• Test results
	• Credential or certificate exams	
	• Employer ratings	• Ratings
	• Work samples	
	• Portfolio assessment	
HUMAN RELATIONS SKILLS	• Cognitive tests	• Scores
	• Sociograms	
	• Social adjustment inventories	• Ratings
	• Employer ratings	

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APPENDIX A (CONTINUED)

PROBLEM SOLVING	• Work samples • Employer ratings • Portfolio assessment • Tests	• Ratings • Scores
ABSTRACT REASONING	• **Tests**	• **Ratings**
CREATIVITY	• Portfolio assessment • Tests	• Ratings
DECISION MAKING	• **Situation trials**	• **Ratings**
EMPLOYABILITY	• Training related placement within specified time • Gainful employment at a specified time following completion • Unemployed looking for employment	• Placement of a specific % or number • Specific % increase in the % or numbers placed • Specific ratio of % unemployed to the local youth unemployment rate
JOB SUCCESS	• **Complete specific number weeks/months with same employer (in same job title or career ladder)** • **Gainfully employed a specific number of weeks/months after the training program**	• **%** • **% change**
SALARY / WAGE	• Beginning salary/wage • Increase during specified time period • Increase over salary before training	• Amount • Comparison to minimum wage • % increase • Amount increase